

FORM PTO-1390 (Modified) (REV 11-98)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTORNEY'S DOCKET NUMBER <b>205815US2PCT</b>	
<b>TRANSMITTAL LETTER TO THE UNITED STATES</b> <b>DESIGNATED/ELECTED OFFICE (DO/EO/US)</b> <b>CONCERNING A FILING UNDER 35 U.S.C. 371</b>				U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR <div style="font-size: 1.5em; font-family: monospace; text-align: center;">09/806512</div>	
INTERNATIONAL APPLICATION NO. <b>PCT/PT99/00016</b>		INTERNATIONAL FILING DATE <b>14 October 1999</b>		PRIORITY DATE CLAIMED <b>14 October 1998</b>	
TITLE OF INVENTION <b>DIALING SIMPLIFICATION SYSTEM FOR TELEPHONES</b>					
APPLICANT(S) FOR DO/EO/US <b>Joao A. FONTES</b>					
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:					
<ol style="list-style-type: none"> <li>1. <input checked="" type="checkbox"/> This is a <b>FIRST</b> submission of items concerning a filing under 35 U.S.C. 371.</li> <li>2. <input type="checkbox"/> This is a <b>SECOND</b> or <b>SUBSEQUENT</b> submission of items concerning a filing under 35 U.S.C. 371.</li> <li>3. <input checked="" type="checkbox"/> This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).</li> <li>4. <input checked="" type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.</li> <li>5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371 (c) (2))           <ol style="list-style-type: none"> <li>a. <input type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau).</li> <li>b. <input checked="" type="checkbox"/> has been transmitted by the International Bureau.</li> <li>c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US).</li> </ol> </li> <li>6. <input type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)).</li> <li>7. <input checked="" type="checkbox"/> A copy of the International Search Report (PCT/ISA/210).</li> <li>8. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))           <ol style="list-style-type: none"> <li>a. <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau).</li> <li>b. <input type="checkbox"/> have been transmitted by the International Bureau.</li> <li>c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired.</li> <li>d. <input checked="" type="checkbox"/> have not been made and will not be made.</li> </ol> </li> <li>9. <input type="checkbox"/> A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).</li> <li>10. <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).</li> <li>11. <input checked="" type="checkbox"/> A copy of the International Preliminary Examination Report (PCT/IPEA/409).</li> <li>12. <input type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).</li> </ol>					
<b>Items 13 to 20 below concern document(s) or information included:</b>					
<ol style="list-style-type: none"> <li>13. <input type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98.</li> <li>14. <input type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.</li> <li>15. <input checked="" type="checkbox"/> A <b>FIRST</b> preliminary amendment.</li> <li>16. <input type="checkbox"/> A <b>SECOND</b> or <b>SUBSEQUENT</b> preliminary amendment.</li> <li>17. <input type="checkbox"/> A substitute specification.</li> <li>18. <input type="checkbox"/> A change of power of attorney and/or address letter.</li> <li>19. <input type="checkbox"/> Certificate of Mailing by Express Mail</li> <li>20. <input checked="" type="checkbox"/> Other items or information:</li> </ol>					
<div style="border: 1px solid black; height: 150px; margin-top: 5px;"> <div style="padding: 5px;"> <b>Request for Consideration of Documents Cited in International Search Report</b>  <b>Notice of Priority</b> </div> </div>					

U.S. APPLICATION NO. (IF KNOWN) - SEE 37 CFR <div style="font-size: 2em; font-weight: bold; margin-top: 5px;">097/806512</div>	INTERNATIONAL APPLICATION NO. <div style="font-weight: bold; margin-top: 5px;">PCT/PT99/00016</div>	ATTORNEY'S DOCKET NUMBER <div style="font-weight: bold; margin-top: 5px;">205815US2PCT</div>
---	--	---


21. The following fees are submitted: <b>BASIC NATIONAL FEE ( 37 CFR 1.492 (a) (1) - (5) ) :</b> <input type="checkbox"/> Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO ..... <b>\$1,000.00</b> <input checked="" type="checkbox"/> International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO ..... <b>\$860.00</b> <input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO ..... <b>\$710.00</b> <input type="checkbox"/> International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4) ..... <b>\$690.00</b> <input type="checkbox"/> International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4) ..... <b>\$100.00</b> <div style="text-align: right; font-weight: bold; margin-top: 5px;">ENTER APPROPRIATE BASIC FEE AMOUNT =</div>	<b>CALCULATIONS PTO USE ONLY</b> <div style="border: 1px solid black; height: 100px; width: 100%;"></div>																				
Surcharge of <b>\$130.00</b> for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492 (e)).	<div style="border: 1px solid black; padding: 2px;"><b>\$0.00</b></div>																				
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">CLAIMS</th> <th style="width: 25%;">NUMBER FILED</th> <th style="width: 25%;">NUMBER EXTRA</th> <th style="width: 35%;">RATE</th> </tr> </thead> <tbody> <tr> <td>Total claims</td> <td>9 - 20 =</td> <td>0</td> <td>x \$18.00</td> </tr> <tr> <td>Independent claims</td> <td>1 - 3 =</td> <td>0</td> <td>x \$80.00</td> </tr> <tr> <td colspan="3">Multiple Dependent Claims (check if applicable). <input type="checkbox"/></td> <td>\$0.00</td> </tr> <tr> <td colspan="3" style="text-align: right;"><b>TOTAL OF ABOVE CALCULATIONS</b></td> <td><b>\$860.00</b></td> </tr> </tbody> </table>	CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	Total claims	9 - 20 =	0	x \$18.00	Independent claims	1 - 3 =	0	x \$80.00	Multiple Dependent Claims (check if applicable). <input type="checkbox"/>			\$0.00	<b>TOTAL OF ABOVE CALCULATIONS</b>			<b>\$860.00</b>	<div style="border: 1px solid black; padding: 2px;"><b>\$0.00</b></div>
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE																		
Total claims	9 - 20 =	0	x \$18.00																		
Independent claims	1 - 3 =	0	x \$80.00																		
Multiple Dependent Claims (check if applicable). <input type="checkbox"/>			\$0.00																		
<b>TOTAL OF ABOVE CALCULATIONS</b>			<b>\$860.00</b>																		
Reduction of 1/2 for filing by small entity, if applicable. Verified Small Entity Statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28) (check if applicable). <input type="checkbox"/>	<div style="border: 1px solid black; padding: 2px;"><b>\$0.00</b></div>																				
SUBTOTAL =	<div style="border: 1px solid black; padding: 2px;"><b>\$860.00</b></div>																				
Processing fee of <b>\$130.00</b> for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492 (f)).	<div style="border: 1px solid black; padding: 2px;"><b>\$0.00</b></div>																				
TOTAL NATIONAL FEE =	<div style="border: 1px solid black; padding: 2px;"><b>\$860.00</b></div>																				
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) (check if applicable). <input type="checkbox"/>	<div style="border: 1px solid black; padding: 2px;"><b>\$0.00</b></div>																				
TOTAL FEES ENCLOSED =	<div style="border: 1px solid black; padding: 2px;"><b>\$860.00</b></div>																				
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;"><b>Amount to be:</b></td> <td style="width: 20%; text-align: center;"><b>\$</b></td> </tr> <tr> <td style="text-align: center;"><b>refunded</b></td> <td></td> </tr> <tr> <td style="text-align: center;"><b>charged</b></td> <td style="text-align: center;"><b>\$</b></td> </tr> </table>	<b>Amount to be:</b>	<b>\$</b>	<b>refunded</b>		<b>charged</b>	<b>\$</b>														
<b>Amount to be:</b>	<b>\$</b>																				
<b>refunded</b>																					
<b>charged</b>	<b>\$</b>																				

☒ A check in the amount of **\$860.00** to cover the above fees is enclosed.  
  
☐ Please charge my Deposit Account No. \_\_\_\_\_ in the amount of \_\_\_\_\_ to cover the above fees.  
 A duplicate copy of this sheet is enclosed.  
  
☒ The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. **15-0030** A duplicate copy of this sheet is enclosed.

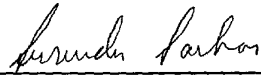
**NOTE:** Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

22850

**Surinder Sachar**  
**Registration No. 34,423**



SIGNATURE

Marvin J. Spivak

NAME

24,913

REGISTRATION NUMBER

April 16 2001

DATE

205815US

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF :  
JOAO A. FONTES : ATTN: APPLICATION DIVISION  
SERIAL NO: NEW U.S. PCT APPLICATION :  
(Based on PCT/PT99/00016 )  
FILED: HEREWITH :  
FOR: DIALING SIMPLIFICATION :  
SYSTEM FOR TELEPHONES

PRELIMINARY AMENDMENT

ASSISTANT COMMISSIONER FOR PATENTS  
WASHINGTON, D.C. 20231

SIR:

Prior to a first examination on the merits, please amend the above-identified  
application as follows:

IN THE CLAIMS

--3. (Amended) Simplification system for telephones in accordance with claim 1 for  
the first alternative characterised by so as to know what type of telephone number (1) was  
dialled using a logic of analysis like that in figure 2 and 3 which is a function of the  
telephone system for each country, region or telephone area and this logic of analysis of the  
telephone number is reflected in the way in which the following three means are related,  
namely comparison with the memories (3) and (4), the counting of digits (5) and the counting  
(6) of time to detect the prefixes, special numbers, short or special telephone numbers and to  
answer normal telephone numbers which may coincide with prefixes, or recognise telephone  
numbers by the absence of all these characteristic situations of the national or regional

telephone system and this logic of analysis of figure 2 and 3, related with these three means, can alter, with the alterations of the telephone system, whatever type they may be, due to changes through alteration or increase of prefixes due to new companies, or any other alterations.

5. (Amended) Simplification system for telephones in accordance with claim 1 for the first and for the second alternative characterised by the number of buttons (34), (35) and (44) to (48), and their characteristics, such as type of prefixes, type and number of telephone lines, etc., both are a function of the telephone system of each country and can be altered to suit the alteration or development of the telephone system, the national or regional system or the telephone area and also due to the change of prefixes, due to new companies and also to the quantity of these prefixes, depending upon the personal interest of the user in having, or not, equipment which is more complete.--

#### REMARKS

Favorable consideration of this application, as presently amended, is respectfully requested.

The present preliminary amendment is submitted to cancel the multiple dependencies in Claims 3 and 5.

[illegible]

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.

Shirley Parker

100

(703) 413-3000  
Fax No.: (703)413-2220  
GJM/SNS:kst  
I:\atty\SNS\205815us-pr.wpd

**Marked-Up Copy**

Serial No: \_\_\_\_\_

Amendment Filed on: \_\_\_\_\_

IN THE CLAIMS

TO 5 1 4 0 2 5 0 0 0 0

--3. (Amended) Simplification system for telephones in accordance with claim 1 [and 2] for the first alternative characterised by so as to know what type of telephone number (1) was dialled using a logic of analysis like that in figure 2 and 3 which is a function of the telephone system for each country, region or telephone area and this logic of analysis of the telephone number is reflected in the way in which the following three means are related, namely comparison with the memories (3) and (4), the counting of digits (5) and the counting (6) of time to detect the prefixes, special numbers, short or special telephone numbers and to answer normal telephone numbers which may coincide with prefixes, or recognise telephone numbers by the absence of all these characteristic situations of the national or regional telephone system and this logic of analysis of figure 2 and 3, related with these three means, can alter, with the alterations of the telephone system, whatever type they may be, due to changes through alteration or increase of prefixes due to new companies, or any other alterations.

5. (Amended) Simplification system for telephones in accordance with claim 1 [and 4] for the first and for the second alternative characterised by the number of buttons (34), (35) and (44) to (48), and their characteristics, such as type of prefixes, type and number of telephone lines, etc., both are a function of the telephone system of each country and can be altered to suit the alteration or development of the telephone system, the national or



09/806512

## Description

DIALING SIMPLIFICATION SYSTEM FOR TELEPHONES

Today, there is a bigger quantity of telephones in a telephone area, because there is a bigger quantity of apartments and also everyone as one telephone at home.

There was a huge increase of telephones in each telephone area and there is no more numbers available. The telephone number has six digits and the telephone numbers reached the maxim number of 99 99 99. This problem obliged a two changes in the national phone system.

One of the changes is that the user has to dial the local area code, for a local phone call. So the user has to dial three digits of the local area code and the six digits of the telephone number. Before this changing of the national phone system, there was only need to dial the local area code, for a call outside the telephone area.

Another changing was to divide one telephone area in two telephone areas. So for each new telephone area, there will be one full sequence of numbers till 99 99 99. There will be twice the quantity of telephone numbers.

People at home or in the companies have a private telephone directory, in which the local phone numbers are written without local area code. The telephone numbers of others telephone areas are written with there local area code. Also, when there are more telephone areas, it means, small telephone areas. One person that stayed far away of other telephone area, now can stay close.

People phone to places, that stayes a few kilometres or even few hundreds of meters. Now, this places belong to another telephone area. For this daily telephone calls, the user has to dial the local area code.

Another changing in the national telephone system is the possibility, to make use of more then one telephone company, however, there is only one telephone wire.

The possibility of choosing two companies makes the price decrease, because there is concurrence.

The user to make use of another company, has to dial an extra prefix.



If the user does not dial the extra prefix, because he forgot or he is in hurry or because of too many digits, then the phone call goes to another telephone company, where the prices are not the best ones. To use another company, the user has to dial more digits to profit the economy of the concurrence between two companies.

A local phone has now, the six standard digits, plus there of the local area code and plus there more of the company prefix. That gives a total of twelve digits.

Another complication for the user is that the companies change the prices of telephone call during the day for concurrence reasons.

When making a phone call, the user has to check the hour of the day and only then choose the more economic company.

The cellular phone, fax, and so on, are also affected, because when the user makes a call, there are also the need to dial nine or twelve digits instead of the standard six digits.

With just one cellular phone, fax, and so on, the user can have the possibility to make use of a different telephone company, but for that he has to dial more digits, It is the same case than a standard telephone.

There was also another change. The special wire for the cable television, can be used also as a telephone wire.

This change obliges the user to have two telephones. The user has to choose during the day, which telephone is more economic.

In the future, there is the possibility to make use of the satellite or the wire of electricity as phone wires. The user will be oblige to have three or four telephones, to be able to make the more economic phone calls.

Another old problem, that it is increased, with more telephones areas is the following one. One person that lives in the centre of a telephone area, the daily calls are to that telephone area. One person that lives in the board of the telephone area, will have people of his relationship, in his telephone area, but also in the neighbour telephone area.

For his daily calls, the user dials six digits for the local calls and the calls to the neighbour area, he dials nine digits.

Nowadays due to concurrence between companies there is a continuous change of the price of telephone calls. The user has difficult to keep

informed of the changing of prices.

The prior art is the applications US 5455858 of the Apple Computer, the application US 5859901 of Henri Tzui, the application US 5859896 of Howard Rosen and the application US 5764741 of Gideon Barak.

The application US 5455858 is about a telephone interface for a computer, to improve to dial the different prefix, and telephone numbers, considering where the computer is and to where the user is going to phone.

The application US 5859901 is about a equipment, that only when the telephone number does not have the prefix area, then the phone number is studied, based in a data base. This data base has the calls usually made by the user. If the number is there, the equipment can know if that number is to the neighbour area or to the telephone area, where the telephone is. Then adds or not a prefix.

The application US 5859896 is about a equipment, that when there is an off-hook, it dials the local area code, and then the user dials the standard number. After a few time, if the user does not dial any digit then the equipment hang up and then off-hook. Then the user dials the telephone number with another local area code.

The application US 5764741 is about a equipment that the user dials a number. Then the equipment for that particularly call and talking in attention the distance of the call, the foreseeable of the call, based in a data with the history of the previous calls of the user and also with different company cost.

This invention is to overcome the present prior of art.

It is an object of the present invention that the user does not have to dial the local area code for a local phone call.

It is another object of this invention that the user does not have to dial the prefix of other telephone companies, or any other prefix independent of the hour of the day, to obtain more economic prices.

It is another object of the present invention, that if there are several wires, the user does not need one telephone for each wire, instead, the user has one telephone and he is able to use any of the wires.

It is also another object of the present invention, that the user does not have to dial the local area code, when he is calling to the

neighbour area. Instead he dials a short prefix.

It is another object of the present invention, to keep the simplicity and speed in using the telephone. The user does not have to spend time and get tired, to decide which of the prefix he has to dial, specially in continuous telephone calls. If he has to dial the local area code, or the prefix of a telephone company, or both. Taking also notice of the different prices between companies during the day.

It is another object of the present invention, to study the telephone number dial by the user and from that study, to know which of the above conditions, it should apply, if just one, several or any, with the intention to keep simple the use of the telephone.

It is also another object of the present invention, that the user, can receive information by the telephone wire, of the changing of price of the telephone calls. With this invention it is possible to change automatically the telephone companies, that are making the telephone call or to warn the user of the new prices.

The drawings are the following.

Fig 1. Basic electronic scheme.

Fig 2. Scheme with the logic of analysis of the telephone calls.

Fig 3. Basis scheme with the study of each digit, as they are dialled.

Fig 4. Outside looking of the equipment with the simplification system for telephones. Top view.

Fig 5. Outside looking of the equipment with the simplification system for telephones. Side view of the same equipment of figure 4.

Fig 6. Outside looking of the equipment with the simplification system for telephones. Side view of another model.

Fig 7. Looking of the equipment with buttons, that allows to choose between two phone companies.

Fig 8. Looking of the equipment with buttons, that allows to choose between three companies.

Fig 9. Continuation of figure 3.

Fig 10. Logic scheme of analysis of telephone calls in the second alternative.

Fig 11. Outside looking of the equipment with the simplification system for telephones for the second alternative.

Fig 12. Outside looking of the equipment similar to the one of figure 11, but more simple.

Fig 13. Interface for the computer.

Fig 14. Basic scheme of analysis of messages.

Fig. 15 Continuation of figure 14.

The change of the national telephone system, has already happened in same countries and it is going to happen in others countries. This invention is going to be explained with the change that already happened in Spain.

In one first stage, there is a exemplification in what consisted the change of national telephone system. In a second stage, what kind of real problems that change makes to the user. In the last stage, how this invention is going to handle these problems.

For a local call, the user has to dial also the local area code.

In a phone call in the telephone area of Burgos, that has the local area code 947, the user has to dial the following.

The telephone number 54 36 79, has to be dialled 947 54 36 79.

In some areas of Spain, but not in all of them, even for local calls, there are more than one company, usually two. For the phone call to be made by another company, it is necessary to dial a extra prefix. It will be necessary to dial 050 947 54 36 79.

In this example, it is supposed that the other company has the prefix 050.

In same regions there are two telephone wires. It is necessary one telephone equipment for each wire. During the day, depending the hour, the user chooses one phone or the other in function of the more economic.

There are telephone numbers that did not changed. It is the case of special numbers, like information 003 or 1003, or repair 004, and so on. This numbers are very short, with three or four digits.

To phone to another telephone area, it was already necessary, to dial the local area code of that area.

To phone to 46 54 67 of the telephone area of Santander, from another area, it was necessary to dial 942 54 36 79. The local area code of Santander is 942.

To make this phone call, but making use of another company, it is

necessary to dial an extra prefix. It should be necessary to dial 050 942 54 36 79.

To call to a cellular phone, there is also the possibility to make use of another company and for that is necessary to dial an extra prefix.

For this calls, if there are another phone wire, it will be necessary to make use of a second telephone.

There are other phone numbers, with ten digits. There are special phone numbers, that begin by the prefix 0800 or 0641, and so on.

In some regions of Spain this phone call can be made by another company.

The change of national system originates five different kinds of telephone calls, that have to be distinguish by the simplification system for telephones.

There is another kind of telephone call. When a phone call is to another telephone area. Instead of dialling the neighbour area code, the user dials a short prefix.

The six different kinds of telephone calls that the simplification system for the telephones has to discern, are the following.

Kind one are the local phone calls where is necessary to dial the local area code. In some regions of Spain is possible that the phone calls are made by another company. For that the user has to dial one more prefix. In some regions is possible to choose between two phone wires.

Kind two is when a direct connection to the standard phone wire. It is a phone call for information, repair, and so on.

Kind three are phone calls for another telephone area, or international, or cellular telephone. For this phone calls, it is possible to use another company. For that is necessary to dial one more prefix. In some regions is possible to choose between two wires.

Kind four are telephone numbers with ten digits, in which the first four digits are standard, like 0800 and so on.

The others six digits are always different, and are the ones who identifies each telephone subscriber. Depending the region and the evolution of the telephone system, there are two possible options.

For this numbers, there is only one company to make the phone call, or there are two companies. In the option, that there are two companies, the user has to dial one extra prefix. So the user has to dial three

digits of the company prefix, and then ten of the phone number. A total of thirteen digits.

In some regions there is also the possibility to choose between two phone wires.

Kind five is a safety option. The user dials a local phone number, but with the local area code. It is a direct call to the telephone wire.

Kind six are the calls for the neighbour area. With the increasing of the telephones areas, the user, could stay with one or even two telephones areas, near where he lives. In his daily calls, instead of six digits, the user has to dial nine digits, and if he wants to use another company, three more. A total of twelve digits.

However, it was mentioned five different kinds of phone calls, it can happen that due to differences, from one region or from one country to another country, or the evolution of the telephone system, it comes out more or different kinds of phone calls.

In the telephone area of Madrid, the telephone numbers have seven digits and the local area code two digits.

That gives a total of nine digits, like the others telephone areas. The logical scheme of the simplification system for telephones has to be adapted to the specifics of each area. Same areas have phone numbers always with six digits, others areas with always seven digits, and so on. Others telephone areas the quantity of digits is not fixed.

In some countries the special prefix 0800, can have not six more digits, but seven, or any other quantity of digits.

In one country is the prefix 0800, but in another country this prefix correspond another number, and so on.

The logical scheme of the simplification system for telephone should be adapted for the specific characteristics of each telephone area or each region or country and to develop with the changing of the telephone national or regional system, so in that way it keeps simple, to use the phone.

To handle this six different kinds of calls, the simplification system for telephones works in this way.

The basic electronic system of the simplification system for telephones is in figure one.

The dial (1) of the telephone.

The logical analysis system (2). That can be a microprocessor, or a CPU, or any electronic component.

To count the digits (5).

A clock (6).

One relay (7) that is going to connect one wire or the other wire. In this figure, it is represented two wires. However, it is possible more wires and of different kinds.

The phone wires (8) and (9).

Besides this components, it is also need a electronic component to dial the digits to the wire.

The memory (3) has the prefix of another telephone company and the prefix of the local area code where is the telephone, and so on. This prefixes are going to be add to the number dial (1).

The memory (4), has others numbers or prefixes characteristics of each country. For instance the numbers of information 003, the emergency 112, and so on. Also the international prefix 00, and the prefix 0800, and others prefixes.

In Portugal, all the local area code begin by zero. In Spain they begin by nine, as it can be seem in the table one. This situation is similar in other countries. For Spain, the memory (3) has the number nine, as data. In this example, the two memories are separated, but they can be together. In both situations the functioning is similar.

The simplification system for telephones has to analyse the telephone number and to know which of the six different kinds of phone calls are. For doing this, it uses a logical scheme to analyse the phone number. This logical scheme is in figure two.

It should study all the numbers dialled, to know what kind of phone call it is. Then it should take the measures in accordance with the kind of call, to get one telephone number correct for the national telephone system and also the more economic company.

In figure three, there is the study of each digits as they are dial.

To exemplifying how the simplification system for telephones works, it is going to suppose the following situations. In the memory (3) there is the prefix 050, of a telephone company, that makes a better price for local calls, long distance calls and international calls. There is also

the number nine, that is the first digit of all the local area code of Spain, as it can be seen in table one.

For the phone calls of kind one.

In the memory (3) there is also the local area code, for example 947. The logical system of analysis (2) studies the number. It compares the digits of this number with the digits of the prefix in the memories (3) and (4). If it does not detect any characteristic prefix or the nine as first digit, that means, the telephone number does not have any prefix.

The logical system of analysis based on the value of the memory (3) adds the prefix 947 to the number dialled and only then sends to the wire phone (8).

All the five kind of calls have a characteristic prefix, expect this one.

If there is not one of the following prefixes has to be a local phone. The nine for a call to another area, the 00 for an international call, and so on. However there is a special number, that does not go by this rule and it is going to be analysed later.

The kind one calls, corresponds in figure two, to the items 10, 11, 12, 15, 17 or 18. In figure three to the items 19, 22, 23, 24, 26, 28 or 29.

In figure three, like in figure nine, mentioned ahead, when there is the expression "has nine" or "has one", it means that the first digit of the telephone number, it is a nine or an one.

The simplification system for telephones allows speed and facility, when one person has to phone.

It can happen, that for local calls, there are two or even more companies in concurrence.

In some countries there are only two companies, but in other countries, there are three or four. In some countries the quantity of telephone companies is limited by the government.

In the previous call, if the user wants that the call is made by another company, it should add two prefix, the 050 and the 947. The total number is 050 947 70 59 54.

There is the possibility that the user has two phone wires. So after adding the local area code, the relay (7), will be activated and



the phone call will be send to the another wire.

The simplification system for telephones has to have the previous instruction from the user, to add the prefix of other company.

Depending on the change of the phone call prices the user activates the equipment to add or not the prefix 050, or he does not activate and it is not add this prefix.

Forward, it is going to exemplify, how the user adds or not the prefix of another company.

The special number does not go by the previous rule, are the following. It is the local phone numbers, with six digits, but that begin by nine, for instance 97 51 24.

This phone number does not have prefix, but begins by nine. The logical system of analysis will suppose, that is a phone number with prefix.

The logical system of analysis with the counter (5) will count the quantity the digits. After, have been dialled six digits and waiting some time, for instance half second, if the user has not dialled another digit, so it can be deduce that it is a local call.

In figure three corresponds to the items 19, 22, 23, 24, 25, 26, 28 or 29.

In the Madrid telephone area, the numbers have seven digits, so it will count till the seven digit. The simplification system for telephones will be adapted for each area with regard of the quantity of digits in the phone number.

Another way to handle this problem is to compare the first three digits, with the local area code. If they are not equal, it is necessary to compare with all the local area code of Spain. If it is not equal to any, it is a local call. But if they are equal, it should check, if they are more then six digits and only them, it could conclude, that it is a phone call to another telephone area. If it is exactly six digits, it could conclude, it is a local call.

For the study above mention, all the prefixes, should be in the memory (3).

This solution can be expensive in a electronic system. However in computers, to have all the prefix in the memory, it is not expensive and allows a faster study of the number dial.

Kind two is the phone calls to information, and so on.

The logical system of analysis (2), connected with the data of the memory (4), it checks if there are two zeros. That is the international prefix. Then is dialled the digit three, so the logical system of analysis (2), connected with the clock (6) waits a few time and for it is not dial any other digit, so it is conclude that it is a complete number and then it sends to the wire phone.

In Portugal, the information number is 118.

Each country has his own special numbers, but normally of three or four digits. For this numbers is always necessary to wait sometime, to check if it is a short number or not.

To count the time, it is possible to use the clock (6) or any other system that counts time.

In figure two, it corresponds to the items 10, 11, 12, 14, 17.

In figure three, it corresponds to the items 19, 20, 21, 28.

In this example there is just one wire (28). That it is the more standard situation. However there is the possibility to exist several wires. In this case, the logical of analysis (2) should be adapted for this, and in the item (14), should have the option to choose between one of the several wires.

The simplification system for telephones should be adapted for the characteristics of this short number, for each region or for each country.

Kind three, it is for phone calls for another telephone area, normally denominated long distance calls and the international calls and the calls for cellular phone.

The prefix that are going to identify each phone call are the following ones. For international call the 00, for long distance call the nine, and for a cellular phone company, for example the 936.

In countries where the local area code does not begin by the same digit, the memories (4) should have all the local area code.

When one person dials (1) a telephone number for another telephone area, for instance 956 60 74 95. Then the logical system of analysis (2) with the memory (3) compares the first digit, and it checks a telephone number that begins with the digit nine.

Then the logical system of analysis (2) with the counter (5),

counts if there are more than six digits. If both conditions are accomplished, it is a phone call to another telephone area.

The logical system of analysis (2) should eventually add the prefix 050 or activate the relay (7), to send to another telephone wire (9) and not for the standard wire (8).

In the figure two, it corresponds, to the items 10, 11, 12, 16, 17 or 18. In the figure three to the items 19, 22, 23 ,24, 25, 27, 28 or 29.

For an international call or a call to a cellular phone, it is a similar study and reaction of the previous call.

The international call should begin always for 00. The logical system of analysis (2) connected with the memory (4), checks two zeros as first digits. That means, that it is perhaps a international call. After the user dials the fourth digit. That means, it is not a special number of kind two. To count the digits, it is used the counter (5). Then it will be add eventually before the 00, the prefix of another company or eventually activate the relay (7), to send to another telephone wire (9), and not the standard wire (8).

In Spain, the national telephone system for an international call, obliges the user after dialling the prefix 00, to wait, till the user listen a specific sound and only then the user dials the rest of the digits.

The specific sound is a electric wave. This electric wave is changed to sound, to be understood by the user.

The logical system of analysis (2) should take attention to this. So it should dial the first digits, waiting for the electric wave and only then the logical system of analysis (2) dials the others digits.

It can happen others situations, when the user has to wait for a signal of confirmation. For example, to confirm to use another telephone company or any other kind of telephone call. The simplification system for telephones should be adapted for this confirmations, or any others that it will exist in the future.

It can happen that the signal of confirmation of another company, take a long time to be emitted, because there is an overcharge of phone calls. The simplification system for telephones warns the user that it is waiting for the confirmation, and after a few seconds automatically, hang up and make the call with another company. This can be done not

automatically, but only after a confirmation of the user.

However this can be a option.

If there are two companies for international, long distance and cellular phone calls. the price of phone calls can change for example every week due to concurrence. So it can happen that one week the price is better in one company and in the next week in another company.

Due to this change of prices, the user can activate the simplification system for telephones, for one week, or one month, or one day to use one company and in the next week, month or day to use another company.

In the figure four there is the equipment (30) with the simplification system for telephones, adapted to a telephone (31). It is a top view.

In figure five the same equipment, but in a side view.

In figure six the simplification system for telephones but with a different external (32) looking. In this example the equipment is intercalate in the phone wire (33), that already existed.

This equipment can have different external looking.

In figure seven, it can be seen the bottoms with detailed. In this case with two options. The button (34) allows to choose between two local phone companies. In the position, 1 there will be add only the local area code. In the position 2, there will be add the company prefix and the local area code. The button (35), allows to choose between two companies to phone calls of kind three. In the position 1, it will not be add any prefix and in the position 2, it will be add the prefix of another telephone company.

If there are more than two companies, for example three or four, the situation will be similar.

If there are two companies, one without prefix, other with the prefix 050 and another one with the prefix 075. It should have a button with three positions.

In the figure eight, it can be seem in detail the buttons for three companies. It is a similar situation of the figure seven, only with one more option. In this example, the position 3 of the button, that means the prefix 075.

The simplification system for telephones can be incorporated in the telephone itself, or fax itself, or any other communication equipment.

That equipment should have buttons for the user to choose which company he wants.

Any of this communication equipment can have a different or more complete kind of buttons. In the figure eleven, it is showed a more sophisticated to select between companies.

For the calls to a cellular phone, it is a similar study of the international calls. Each cellular phone company has a prefix that identifies that company. When it is dialled one of this prefixes, then counts the number of digits. When the user dials the seven digit, that means a phone call to a cellular phone.

The prefix of a cellular phone is 936. When the simplification system for telephones checks the prefix 936, it counts the number of digits. If it is more that six digits, then it adds or not a prefix, or activates or not the relay to send to another wire, if there is more then one wire.

In figure two, it correspond to the items 10, 11, 12, 16, 17 or 18. In the figure three are the items 19, 22, 23, 25, 27, 28 or 29.

In figure three, in the item 23, when it is written "has 936 or others", it means to check if there is the prefix 936 in the first three digits of the telephone number, or to check if there is the prefix of another cellular phone company in the first three digits of the telephone numbers.

In kind four, there are calls with the prefix 0800.

In this situation, the logical system of analysis (2), compares that prefix with the date in the memory (4). If it is equal, then the logical system of analysis (2) with the counter (5), counts the digits. When it notices more then six digits, it is sure, it is a telephone number with the prefix 0800. Then it adds or not the prefix of another company, or makes the option to use another phone wire.

In the figure two, it corresponds to the items 10, 11, 12, 16, 17 or 18.

In figure three, it correspond to the items 19, 22, 25, 27, 28 or 29.

In the figure three, in the item 22, when it is written "has 0800", that means, the first four digits are 0800.

This solution is also for other special prefix like 0641, and so on.

This special prefix can be different in each country. In the Madrid telephone area, the telephone numbers have seven digits. The count of the digits should detect more than seven digits.

In all the previous situations, it has been mentioned to add prefix in a certain order, but the prefix can be add in any order.

Instead of the complete number have this order 050 947 70 59 54. It can be first the local area code and then the company prefix. The number will stay like this 947 050 70 59 54. The prefixes can have any relative position between themselves and also between the telephone number.

It can also happen, that others wires of communication, like for instance, the cable television, that it is necessary to add a prefix. The simplification system for telephones, should also handle this problem.

Kind five, is the safeguard call. If the user dials (1) the telephone number, with his local area code, it should happen the following. The logic system of analysis (2), compares the first digit with the digit in the memory (3) and finds that the first digit is nine. Then it counts the number of digits. If it is more than six, then it checks, if the first three digits are equal to the local area code, that is the memory (3). If there are the same, then should add eventually a prefix of another company and to choose the wire. If it was only dialled six digits, it is a local call, without local area code.

In figure two, it corresponds to the items 10, 11, 12, 16, 17 or 18. In the figure three, it corresponds to the items 19, 22, 23, 24. In the figure nine, there is the alteration to the figure three, to handle this kind of phone calls. Following the item 24, are the items 25, 37, 38, 28 or 29.

This problem can also happen with other phone calls. Like the number with local area code and with the prefix of another company, and so on.

This five kind of call, can be a option. If the simplification system for telephones adds a local area code to a number already with the local area code, then the national telephone system does not make the call, because there are too many digits and it will send a warning sound.

Kind six, it is when the user lives near another telephone area,

and he has to phone daily to that area. That means, that the user has to dial the local area code and eventually also the prefix of another company.

To handle this situation, there are several possible solutions.

To have a prefix that identifies another area, for example the number one. The user to call the phone 45 67 34, of the telephone area 948, instead of dialling 948 45 67 34, he would dial 1 45 67 34.

When is dialled (1), the number one, the logical system of analysis (2), compares with the memories (3) and detects this prefix. Then it should count (5) if there are seven digits.

The simplification system for telephones deletes the first digit and adds the necessary prefix and chooses if possible, one of the wires, like in the kind three phone calls.

The prefix is not fixed, it can be any other number, or a signal, like for example \* that are in same phones. That prefix has to be previously determined. In same regions, has to be the prefix \* or a special button.

In the telephone area of Madrid, the numbers have seven digits. In a neighbour area the telephone area have six digits. If from Madrid, the user dials the prefix 1 to another area, it stays a telephone number with seven digits.

The simplification system for telephones counts seven digits and can not know, if it is a local phone call or a phone call to another area.

In this particular situation the prefix, has to be special, but not a number. Another option, it is to have a special button.

It can have this prefix or the activation of the button in any relative position of the telephone number.

In figure two, it correspond to the items 10, 11, 12, 13, 17 or 18. In figure three, it corresponds to the items 19, 22, 23, 24. It continues in figure nine, with the items 24, 36, 39, 40, 28 or 29.

Another way to handle this problem, is that the prefix number is any number.

The counter (5) detects seven digits. It will delete the prefix. The prefix could be in the begin or in the end or any other relative position of the telephone number. There was always the obligation, that

the prefix lays in the same position. The relative position has to be determined and so the user dials the prefix in the same position.

If the user is in a telephone area near to two phone areas, there will be two fixed prefixes.

To handle this problem, counting the digits is not enough. It is necessary to have the prefix 1 to the telephone area 943 and the prefix 5, to the telephone area 948.

The simplification system for telephones when detects the first digit 1 or 5, begins to count the number of digits. If it counts seven digits confirms that it is a call to another area.

It deletes the prefix and it will add the necessary prefix and if possible choose the wire.

In figure three, there is the study for groups of two or three digits. However the logical system of analysis (2) can begin to study immediately in the first digit. Beginning to add prefixes and send the call to the telephone wire, before the all the digit has been dialled. For same numbers, it has to wait for all the number to be dial, to get sure what kind of phone call. If the number dialled is 08 54 17 and studying immediately for the first digit. In figure three, it will be the following.

In the item 19 will be standard, but in the item 22, when is dialled the third digit, it will go to the item 24, without waiting for the four digit.

Every phone area has his own characteristic local area code. This local area code has to be in memory. The simplification system for telephones has to be build for each telephone area or can be adapted for each telephone area.

In same countries, in one telephone area, the telephone numbers, can have four, five or six digits and they have not compulsorily the same quantity of digits.

The simplification system for telephones should be adapted to this situation. Instead of having the counter of digits, it has a counter of time.

The counter of digits, the short prefix and the counter of time, should work in conjugation in a way to detect what kind of telephone number it is.



In figure three, in the item 25, instead of a counting of digits, it will have a counting of time. After a few time, if it is not dial any more digit, it will go from the item 25 to the item 26. But if it is dial, it will go to the item 27.

This counter of time, can be the continuous reading of the clock (6) by the logical system of analysis (2). It can be any other way of counting time.

This simplification system for telephones is explain in electronic circuit, but it can be built in any other way. It can be used for switchboard, computerise telephone, cellular phone, fax, wireless telephone, equipment of sending e-mail messages, public phones, a computer with modem or with any other equipment or any other equipment of communication that exists today or it will exist in the future.

Due to the evolution or changing of the national phone system it can change the prefix of the phone companies.

To avoid to buy a new equipment, the memories (3) and (4) can be changed by a new ones, updated.

This memories can be a electronic component, as a memory eeprom.

In this kind of memory it is possible to rewrite the data.

If there is a change in the prefix, it will be only necessary to rewrite the memory eeprom. This rewrite can be made directly or with an outside equipment. This memory can be assemble in a plate. This plate can be dissembled from the equipment and taken to a shop to be rewritten.

Instead of having a eeprom memory, it can have a prom memory. This memory does not allow to be rewritten. It will be necessary to buy a new equipment. However the first equipment had cost less.

Instead of memories prom and eeprom, it can be any other kind of memories.

The concepts showed are in large meaning. Perhaps, there is one country or one region, that for local calls, there is just one company, but it is necessary to add the prefix of that company to the phone number. However to phone to other telephone area or international call, there are two phone companies.

Another possibility is to have one wire to local calls and another wire for long distance calls. For international calls, the first wire, but with additional prefix.

There are several possible combinations, between several prefixes or other kind of prefixes, in one telephone wire, and also with other telephone wire, eventually with his own specify prefix. There are also the possibility of the communication by satellite or by the electrical wire, or any other way, material or system of communication, that exist today or it will exist in the future. There are different national or regional telephone system, that the simplification system for telephones or any communication equipment, shall be adapted to allow a simple and economic use.

Perhaps there are countries, where the changing of the national telephone system, is slight different.

For the local calls is not necessary to add the local area code, but if the user wants another company, he has to add the prefix of another telephone company. All of the others changes are the same.

The simplification system for telephones, will be adapted to this system. In the figure 2, the item 15 will be different. In this item, it will be add, if necessary, only the prefix of another company. The others items stay the same. In the figure 3, the item 26, should add if necessary the prefix of another company.

Other possible change, it is to have two or more phone companies and the first digit of the local area code, is not the number nine.

Instead of the nine, to have one digit, that is the prefix of each phone company.

In Spain all the local area code begin by the number nine and the other two digits are different in relation with each telephone area. One possible change, it is instead of the local area code 948 of Burgos, to have two possible local area codes.

Instead of the fixed digit nine, there is one digit that correspond to the phone company, the user wants.

For example, the phone company named A has the prefix 4. The phone company named B has the prefix 5.

The user to phone to the number 74 53 69 of his telephone area, has two possibilities.

One possibility is to dial 448 74 53 69 and the other possibility is to dial 548 74 53 69.

In the first possibility, the call is made by the company A and in

the second possibility, the call is made by the company B.

This situation is similar, to the previous one. The user has also to dial the local area code for local calls, nevertheless with the obligation to choose a telephone company.

To determine if it is a local call, it is necessary to count the number of digits. After the user has dialled the six digit and after a short time for example 1/4 of a second, if no more digit is dialled, it could be concluded, that is a local call.

The simplification system for telephones should add the local area code like before, and also the prefix of the phone company.

A phone call to another telephone area is not possible to detect, by the first digit, the number nine. To know if it is a phone call to another area, it is necessary to count the number of digits. The user will dial, six digits of the telephone number and two more of the local area code. A totally of eight digits.

When the user dials the seven digit, it is confirmed, that it is a call to another area.

This example is generic. If the simplification system for telephones is equipped to detect a phone call to a neighbour area, then it has to be the eight digit. The seven digit will indicate a phone call to the neighbour area.

If in a telephone area, the quantity of digits in a telephone number, is not the same, then the solution has to be different. It will be necessary a special prefix or to have a special button, or to count the time to determine, when the user finishes to dial.

Another solution is to have in the memory all the local area code and by comparison to detect which phone calls are long distance calls.

Another possible change of the national telephone system is not to dial any prefix of a phone company. The number will be 48 74 53 64, without the first digit, but with the local area code.

In this case the phone call will be made by a third company.

Also this situation could be handled by the simplification system for telephones and the user only dials 74 53 64 and it will be add the prefix 48.

Not all the telephone areas of Spain have two wires of

communication. The possibility to choose between two or more wires is a option.

The logical scheme of the figure three and nine, are not limited. It is possible to have another logical scheme, but with equal results.

The logical schemes of the figure three and nine are with relation to the national Spain telephone system and does not take in attention, the characteristics of some regions or telephone areas of Spain. One telephone area with telephone numbers with seven digits, or to have two wires of communications, obliges in each case a different logical scheme.

The simplification system for telephones should be built, in attention to all this different characteristic. Also any other different telephone characteristic of others countries. The evolution or any change or more quantity of phone companies, obliges a different logical scheme of the figure three and nine.

To handle all this present variation and future variation the simplification system for telephones should be built for each case, with a unique relation between comparing digits, counting digits, counting time, and then the simplification system for telephones is able to study the number dialled and to know what kind of number is, and then it should add or not the necessities prefixes and to choose the wire of communication. Always, with the goal to keep simple and economic the use of the phone.

The telephone companies can have different prices during the day.

The simplification system for telephones can have a internal clock (6) to be able to economise with the change of price during the day.

The user defines previously in the clock (6) the hour of the day, when the call begins to be made by another company. When it arrives that time, automatically, when it is dialled a number, it is heard a warning sound. The user changes the position of the button, that chooses the company, for instance (34) or (35), and so on. Then the phone call is made by another company. Because it was changed the position of the button, it stops to emit the warming sound, next time the user dials a number.

Another way of operating is when it arrives the time defined before by the user, then the equipment changes automatically the position of the button, that chooses the company, for instance (34) or (35), and so on.

The user can due to the pre-selection of the buttons, that the local phones made by a company for the long distance call another company. He can also choose another wire and also take in account the hour of the day. In this way, it is possible to program the simplification system for telephones.

Perhaps, there is one company, that the calls are lower price, but the quality of sound is not very good. The user, can make a selection of the company, taking in account the two paraments and not just the economic one.

It can happen, that the user is interested, to have the company A for local calls and the company B for long distance calls and the company C for international calls.

To handle all this options, the logical scheme is slight different to the figure 3. The "yes" of the item 21, it will not go to the item 27, but to another one similar to the 27. In this similar one, it will add a prefix. The item 27, it will stay the same for the others conditions.

It will be necessary one more button, to select one more prefix.

The equipment with the simplification system for telephones can be more sophisticated. It can have a liquid crystal display (LCD) with buttons interplay with the data in the display. In this way, there is a more visual and interaction programming with the data. This equipment can handle more companies and in a easy way.

It was explained a simplification system for telephones to handle the six different kinds of calls. However it is possible another solution. It is a second alternative.

It also simplifies the use of the telephone. It is more economic, but less practical.

The first alternative is for people in offices or people that makes a lot of calls.

There are people that makes few calls and the majority of them are local calls.

Because the majority of the calls are local ones, they do not spend time thinking what kind of phone call is.

For economic reasons, it can be interested another alternative equipment. This equipment is described as followed.

There are six different kinds of calls, to be study by the

simplification system for telephones. If the equipment has not the logical system of analysis (2), the user has to decide between three conditions.

In figure ten, there is the new logic scheme related with the switch on of the buttons.

Condition one and the button (41) is switch on, that means, it will add the local area code and eventually the prefix of other phone company, or to use another wire.

It is for local calls, that before it was necessary to dial the local area code.

Condition two and the button (42) is switch on, that means, it will add the prefix of other company or to use another wire.

It is for phone calls for other telephone area, international calls, cellular phone calls and calls for special prefix 0800, and so on.

Condition three and the button (43) is switch on, that means the phone calls go directly to the wire. It is for calls for information, emergency, and so on.

In figure eleven, it can be seen an equipment with three buttons.

The user has to take the decision, what kind of call it is. Then the user switches on, one of the buttons (44), (45), (46) and so it will be add one or several prefix, or it will be not add any prefix.

For each call is not necessary to switch on one of the buttons.

Once the button is switch on, it remains fixed till it is switch on, another button.

This equipment is for people that makes few calls and the majority of them are local calls. So there is no need to switch on continually the buttons. The majority of the time, the local call button will stay activated.

To call attention, the button (46) of the figure eleven has a different colour of the others buttons, or it is bigger than the others, or another shape.

In an accident situation, a person can stay nervous and she does not remember, that she has to switch on the button before it makes the call.

The emergency number is 112 and it is a direct call to the wire, without need of an extra prefix.

Eventually, the equipment can have the word EMERGENCY written near to this button.

Another possibility, it is the equipment to have a logical system to detect the number 112 and independently of the button activated, it sends the phone call to the wire.

The equipment has other buttons (47) and (48), that allow to choose which company the user wants. The button (47) has four positions, that allows to choose between four companies. The button (48) is similar to the button (47), but it is for long distance calls and international calls and to cellular phone calls.

In the figure eleven, the user chose in the button (47) the company one, for local calls. For other kind of calls the user chose in the button (48), the company four. When the user activates the button (44), is the company one that it will make the phone call.

If the user wants another company, he changes in the button (47), for example company three. When the user makes a phone call, and if the button (44) is activated, the phone call will be made by the company three. The same relation between the button (48) and the button (45).

Some countries only have two companies in concurrence. In figure twelve, it can be seen an equipment that it is only possibly to choose between two companies (54) and (55).

The buttons (47) and (48) instead of having four positions, they can have three or five or any other quantity of positions. The quantity of positions, it is in function of the quantity of companies in concurrence and the economic profit of the user to have a equipment to select between so many companies.

The telephone number has six digits. Now the user to get profit of the concurrence has to dial twelve digits. To dial so many digits is a limitation to concurrence. It is important to have the more economic equipment for the user and so the user can save money with the concurrence between telephone companies.

There is also another equipment, in which the companies, that the user selects in the buttons (47) and (48) can be changed with the buttons (49) and (50).

If there is a great change in the prices, this equipment gives the

possibility to change the four companies, that the user selects in the daily calls.

The equipment can have a four button for calls for the neighbour telephone area. When the user switch on this button, it will add to the number dialled, the following. The neighbour local area code and eventually the prefix of another company or to choose another wire. If the user lives near two telephone areas, the equipment could have two buttons.

For the same problem, there is another option. The user dials one more digit. The equipment has a counter of digits. When it detects one more digit, it deletes this digit and adds the necessary prefix and choose the wire if necessary. This counter of digit can have the possibility to detect the signal \* or any other signal, in the same way as the first alternative.

It can have a five button, to select between two or more wires.

Instead of the five button, this option can be integrated in the buttons (47) and (48). This buttons would select between companies and also between wires.

It is possible that in a country, there are two companies for local calls, but for long distance calls, four companies. The equipment will have the following configuration. In the figure twelve, it will keep the button (54), but instead of the button (55), there will be the button (48) of the figure eleven.

This possibility, like the one of changing throw the buttons (49) and (50), which companies to select, they both apply to the first alternative.

It can be interested to have one button for long distance calls and another button for international calls.

There was mentioned different equipment combinations, but there are others possible combinations. The quantity of buttons (44), (45), (46) and the quantity of options (47), (48) and to have or not the buttons (49), (50) gives different possible equipment combinations.

In this alternative like in the first one, the equipment is able to wait for the electric sign of confirmation and only then, the equipment will dial the rest of the digits.



This equipment can have a simple clock (52) or one with programming.

When changed the hour, a simple clock, every time the user dials a number, makes a warning sound. The user will switch off the button (51) that it will stop the sound. The clock can be programmed for different hours of the day and so can handle differences of prices during the day.

A programming clock will change automatically the prefix company. For a long distance call, the equipment till 18 hours will add the prefix 050. After 18 hours automatically, it will add the prefix of another company.

The user should had programmed in the button (53), that hour. The clock can be programmed for two or more different hours of the day. For instance, one at 18 hours and the other at 21 hours.

There are countries or regions that have just one wire of communications. There are people that do not leave near another telephone area. Some countries only have two companies in concurrence, others countries have more companies. Due to all this different conditions, this equipment can be built in several ways.

This equipment can be an independent one, or to be part of the telephone itself, or part of any other communication equipment. It would be a more economic telephone models, than the ones of the first alternative.

The phone calls made by the computer have the same solution as the first alternative.

The logical scheme of the phone calls are the same of the first alternative as also the operation of the simplification system for the telephones.

In the figure thirteen there is the interface.

For a local call the user, only dials the number, without any prefix. In a long distance call, the user dials the number with the local area code, of that area. The user has not to worry to separate any prefix or code, from the telephone number. For the other phone calls, it is the same as mentioned in the first alternative.

Instead of the electronic components, the simplification system for the telephones uses the CPU the ROM and the RAM of the computer.

The user types the number with the keyboard, or the mouse or the user dictates, and the number will be written in (57).

The computer can write in (59) the telephone number that it is dial to the wire. This for information of the user or for eventually confirmation by the user.

In this way, the simplification system for telephones will keep simple the use of the computer as a communication system. The user would not worry, with any prefix. The simplification system for telephones will choose and dial the necessary prefix to that particularly call, and to choose wire.

The user when needs to phone to the neighbour area, instead of typing one more number, it could switch on the button (58). This button has the name of "another area". If the user lives near to two neighbour areas, it would have two buttons.

If the user takes the computer to another telephone area, then the user activates the option "computer another area" (60). The user will indicate the new area, and the simplification system for telephones will operate taking in account, that the computer is in a new telephone area.

The option (56) has the name "change prefix". This option allows to survey the phone companies and prices that are used. The user can also change the companies that make the phone calls.

The interface can have more options, for example a map with the prefix of the several telephone areas.

The interface is not rigid, it can have other graphic look and to have more options. The figure thirteen is only to exemplify the concepts of the simplification system for telephones.

The computer or any other computerised system with a modem or any other outfit can use the simplification system for telephones. It can also be used by other outfit directly or indirectly to the wire.

When it is mentioned the telephone wire, that is not restricted to this wire. It can be any other wire of communication, that already exist or it will exist in the future.

The simplification system for telephones can be used in connections by internet, to send e-mail message, or fax throw the computer, and so on.

For the first and the second alternative, the simplification system

for telephones adds local area code and company prefix but also others prefixes.

Some countries can have a national telephone system, or certain areas or regions or any others, that oblige the user to dial today or in the future other kind of prefixes.

For instance a personal identification code and for the first and second alternative, the simplification system for telephones could dial this code. This personal identification code will be related with the components, that has the simplification system for telephones.

The capacity to add this personal code is the user who gives the data or it is made in factory.

For doing this, the logical system of analysis, the memories and the counter of digits and the counter of time, they all shall be actualised as also the co-ordination between all of them.

In this way the simplification system for telephones can keep with the evolution of the telephone and differences between countries, regions, areas, with the goal to keep simple the use of the telephone, computer, and others communication equipments.

The logic scheme of figure three for the first alternative and the logical scheme of figure ten for the second alternative should be adapted to more or different prefixes.

Also both logical schemes should be adapted, if it is necessary to wait for a confirmation with a electric wave, after has been dial a prefix or code or several prefixes or codes.

Another problem it is the continuos changing of the prices. The user has to be continued informed, to save in the phone calls.

The user can receive a message with the changes of prices. This message has special characteristics. One of the characteristic is to have a special code to be identify by the simplification system for telephones.

Another characteristic is to have a normalised message, that it allows to be understood and with interaction with the simplification system for telephones.

This message should have standard characteristic. In this way it can be send by any telephone company and the user with just one

equipment, can understand and studied all the messages, send by different companies.

If the new prices of a company are study by a department of the government or by a independent company, then it will only send the message, if the prices are real better. The only thing to be confirmed, if the user has subscription in that company.

If the message is send by a company, it should be always checked. The first check is if the user has subscription. Another check, if the price of that company is better then the prices of the actual company.

The logical scheme is in figure fourteen and continuous in the figure fifteen.

The item 61 receives the message.

The item 62 checks if there are subscription. If there are not, it sends to the item 72, to stop analyse. If there are, then it sends to the item 63.

In the item 63 checks the type of call that shall be study. If it is a local call, a long distance call, international call, and so on.

The item 64 identifies in the message the new cost and the hour of the day, that begins that price. The new cost is given to the variable A and the time to the variable h1.

In the item 65, the cost of the call is given to the variable B and the hour of the day to the variable h2. This values are the ones been used in this moment.

The item 66, cheeks if the two hours of the day are identical. For that it compares h1 with h2. If they are not identical then it sends to the item 67, for the user came to a decision.

If they are identical, it goes to the item 68, that will compare the price in the variable A, with the price in the variable B.

If the price A is not better, it goes to the item 73. In this item, it checks if all the message has been studied. If it has not, it sends to the item 62. If it has, it stops the analyse.

If the price is better it goes to the item 69. In this item, cheeks, if it is necessary confirmation of the user to change the company.

If it is necessary confirmation, it goes to the item 70. When the

user makes a phone call, he will be warmed with a sound or in any other way.

If it is not necessary confirmation, it goes to the item 71. In this item makes the alteration of the company.

Independent of the confirmation in the item 70, it goes to the item 73. The item 71 after the change and the item 67, they both go to the item 73.

In the item 73 will continue the study of the message or it will stop the study of analysis if all the message has been studied.

If it continues, then it will send to the item 62, to study another type of call.

In the item 66 if the hour of the day are not equal, it could not wait for the confirmation of the user, but to continue the study of the prices.

For exemplifying, the following values. Two companies A and B with the same price, during the day. The company A reduces the price after the 18 hours, and this new price is kept during the night. The company B reduces the price after 19 hours, and this new price is kept during the night. However the new price of the company B is better than the new price of the company A.

The phone calls during the day are made by the company B. After 18 hours, the phone calls will be made by the company A and after 19 hours again by the company B.

In the item 62 it could have another option. If the user has not a subscription, it could continue and make the study of the price. This study could include the result, taking in consideration, the cost of a new subscription and also the saving on the phone calls. Considering the average of the calls in the previous month.

Both alternatives can have this study of analysis. If the equipment has a liquid crystal display (LCD) or the interface of figure 13, can show all the results. The simple equipment can have a light sign or any other way to warn the user of a message. Then the user will contact the company.

This message analysis can be an independent equipment, without the other part of the simplification system for telephones. That is for a country, where there was not the telephone national change. This message

telephones can be integrated in a telephone, or in other mean of communication.

The logical analysis of the message in figure fourteen and fifteen, are not rigid. In this example it took in consideration several premises, like price and the hour of the day. But it can take any others, like the quality of sound, and so on. It could exist a department of the government that can analysis the quality of sound. It can take in account any other premise that exist today or it will exist in the future.

This premises should be normalised, for the logical scheme of figure 14 and 15, will be able to analysis, the message complete and fair.

It can also have another logic scheme, with identical results.

Perhaps there are other kind of prefixes, that the simplification system for telephones, for the first and second alternative also has to handle.

There are countries, that inside the telephone area, it is divided in small telephone areas. That telephone area is just one city, and it has a local area code. It can also be a region with several cities and countryside. But in each quarter the telephone number, begins by one or two or three specific digits, of that quarter. It is similar to the postcode in a city.

With this mini local area code is possible to know more exactly, where the telephone is and where the user is phoning to. In that way, it is possible to know the distance in kilometre between the two phones.

It would be also possible, to know the distance between two phones, even they are in different telephone areas.

The companies can have different prices, regarding the distance, and not just only the telephone areas and the international calls, and so on.

The simplification system for telephones can have in the memories (3) and (4), this mini local area code and to choose the company, taking in attention the distance, even inside the telephone area.

Any other circumstance, that it will make different prices between telephone companies, that exist today or it will exist in the future, then the simplification system for telephones, should be adapted, to obtain the more economic and easy phone calls.

TABLE ONE      Local area code

Telephone area	Local area code	Telephone area	Local area code
Alicanante	96	Madrid	91
Badajoz	924	Oviedo	95
Barcelona	93	P. Maiorca	971
Bilbau	94	Palmas	928
Burgos	947	Pamplona	948
Cscceres	927	Salamanca	923
Cadiz	956	San. de Compostela	981
Corunha	981	San Sebastian	943
Gijon	98	Santander	942
Huelva	959	Sta. Cruz Tenerife	922

## claims

## 1

Simplification system for telephones is composed of memories (3) and (4), the digit counter (5), the clock (6), the relay (7), to be integrated in a telephone or as an external device to complement the use of the telephone (31), characterised in the first case by the number dialled (1) by the user without any area or telephone company prefix, but it may have a short call identification prefix for another telephone area and the logical system (2) studies this number by comparing it with the prefixes in the memories (3) and (4), by counting the number of digits and also checking with the time counter in the clock (6) and once it knows what type of telephone number it is, the logical system (2) will check if the short prefix exists and depending on the type of number, the logical system (2) will if necessary add the prefix of the area itself or the prefix of a neighbouring area and then, the logical system, depending on the choice of the company making the telephone call which the user set previously, on buttons (34), (35), this choice can be automatically changed by the clock (6), which was pre-set by the user or when the telephone call is made, the clock (6) will give an audible warning signalling the change of timetable and then the logical system (2) will if necessary add the prefix of a telephone company or activate the relay (7) and send to another telephone line, or both situations, the second alternative consisting of having various buttons (47), (48) for the user to select which company or telephone line he wishes to use, what he wants to happen to the call and the position of these buttons can be automatically changed by the clock (6), which was pre-set by the user or when a call is made, the clock (6) will give an audible signal about the change of timetable, these buttons being directly related to buttons (44), (45), and when the user activates one of the buttons (44), (45), or (46), or if the user has already activated one of these buttons (44), (45), (46) in the previous call, because these buttons are fixed from call to call, until another button is activated and the user then dials the telephone number and depending on one of the buttons (44), (45), (46), previously activated, this will provide a different reaction from



each one of them in relation to the number dialled, button (44) can add the area prefix and if necessary the prefix of another company, button (45) adds the prefix of a company and button (46) is a direct connection to the telephone line and these buttons or a fourth one, or more, when activated, can have a different reaction or a combination of reactions and the first and second alternatives can receive standard messages, the new prices and timetables practised by telephone companies, which will be analysed according to the logical plan of figure 14 and 15, in relation to those used and if they are better, the companies will be automatically changed or the user's confirmation to make this change will be requested.

## 2

Simplification system for telephones in accordance with claim 1 for the first alternative characterised by the analysis of figure 2 and 3 to study the characteristics of the telephone number dialled (1) by the user to be made by means of comparison of digits of the number dialled with those of the memories (3) and (4) and together with another means which is the counting (5) of the number of digits of the number dialled or together with another method which is the counting (6) of time, however for some numbers it is not necessary to analyse with the three means, only two, or the two first means or the first with the third means, or any other combination of two means or for some numbers only one of these means needs to be used.

## 3

Simplification system for telephones in accordance with claim 1 and 2 for the first alternative characterised by so as to know what type of telephone number (1) was dialled using a logic of analysis like that in figure 2 and 3 which is a function of the telephone system for each country, region or telephone area and this logic of analysis of the telephone number is reflected in the way in which the following three means are related, namely comparison with the memories (3) and (4), the

35

counting of digits (5) and the counting (6) of time to detect the prefixes, special numbers, short or special telephone numbers and to answer normal telephone numbers which may coincide with prefixes, or recognise telephone numbers by the absence of all these characteristic situations of the national or regional telephone system and this logic of analysis of figure 2 and 3, related with these three means, can alter, with the alterations of the telephone system, whatever type they may be, due to changes through alteration or increase of prefixes due to new companies, or any other alterations.

4

Simplification system for telephones in accordance with claim 1 for the first and for the second alternative characterised by the user may previously select which telephone companies and which communication lines he is going to use for the telephone call, through buttons (34), (35) and (44) to (48), these can be changed automatically by the clock (6) which was also pre-set, or give an audible signal when a telephone call is made.

5

Simplification system for telephones in accordance with claim 1 and 4 for the first and for the second alternative characterised by the number of buttons (34), (35) and (44) to (48), and their characteristics, such as type of prefixes, type and number of telephone lines, etc., both are a function of the telephone system of each country and can be altered to suit the alteration or development of the telephone system, the national or regional system or the telephone area and also due to the change of prefixes, due to new companies and also to the quantity of these prefixes, depending upon the personal interest of the user in having, or not, equipment which is more complete.

Simplification system for telephones in accordance with claim 1 for the first and for the second alternative characterised by when adding a short prefix to identify the telephone call to another telephone area and this number is mistaken for a local telephone number, the user has in this case to use a special short prefix, like \* or any other signal, or a special key, the logical system (2), the memories (3) (4), the clock (6) and the counter (6) of digits are adapted to detect this short prefix and to act accordingly and a prefix of this type can also be used for any other ambiguous situation.

Simplification system for telephones in accordance with claim 1 for the first and for the second alternative characterised by in accordance with selection 1 for the first and for the second alternative characterised by a standard message from any telephone company being sent through the communication line, for example the telephone line, which is destined for all simplification systems for telephones, this message having a standardization which is coordinated with the logical analysis of figure 14 and 15, which have the simplification system for telephones, so that this message can be studied, in its various parameters, to determine whether it is preferable to opt for another company and if it is preferable, to automatically change the company or request confirmation from the user or inform that there is a better price, but that it is necessary to have a subscription, and the standardization of the logical analysis of figure 14 and 15 may be altered depending on each national, regional or area telephone system or on the development of equipment or a new standardization agreed among the different telephone companies or any other entity.

37

8

Simplification system for telephones in accordance with claim 1 for the first and for the second alternative characterised by a state or an independent organism studying the new prices of a telephone company and if they are better, to send through a communication line, for example a telephone line, a message which will automatically change the companies which are being used in the simplification system for telephones, and the user can bar the activation of this message or the change of company will have to be confirmed by the user, or the message shall warn about new prices, but a new subscription is necessary for this.

9

Simplification system for telephones in accordance with claim 1 for the first and for the second alternative characterised by not having all the functions described, like the relay (7) for two lines, or the option button for one of the lines, that the selection in buttons (49) and (50) has less than four options, or more than four options depending on the telephone characteristics of each country or region and also depending on the cost of the simplification equipment for telephones in relation to the economic interest of the user.

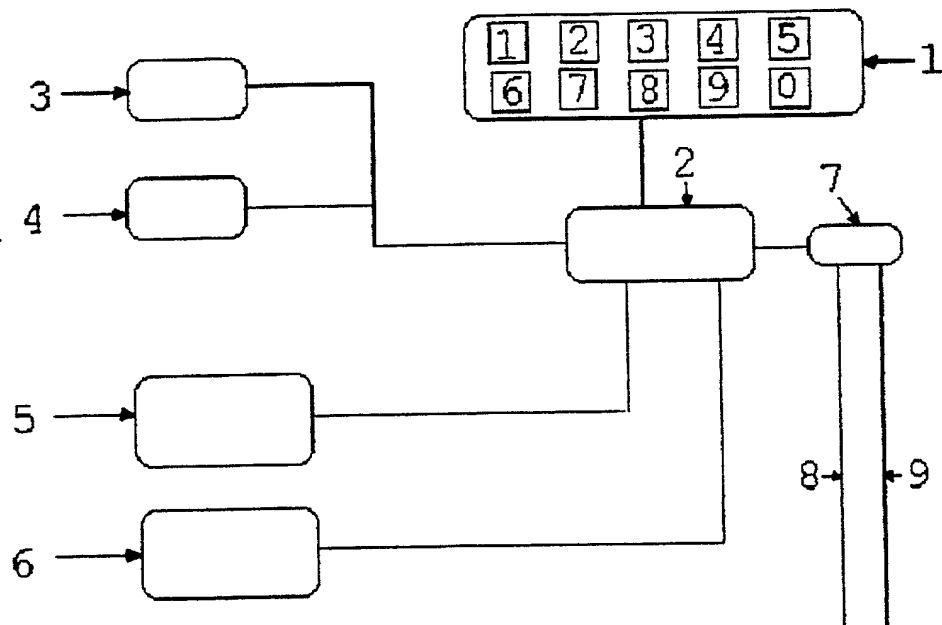


Figure 1

2/11

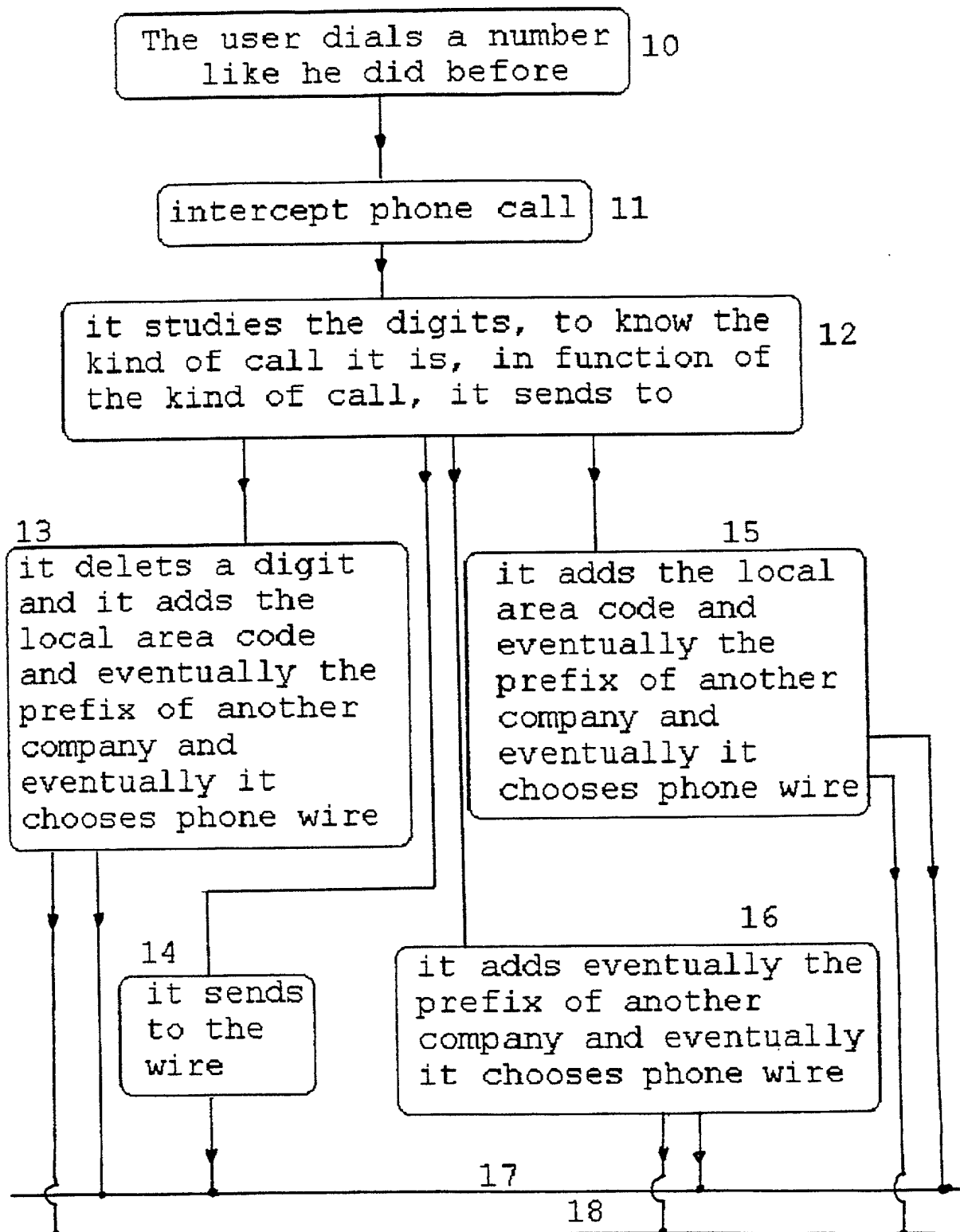
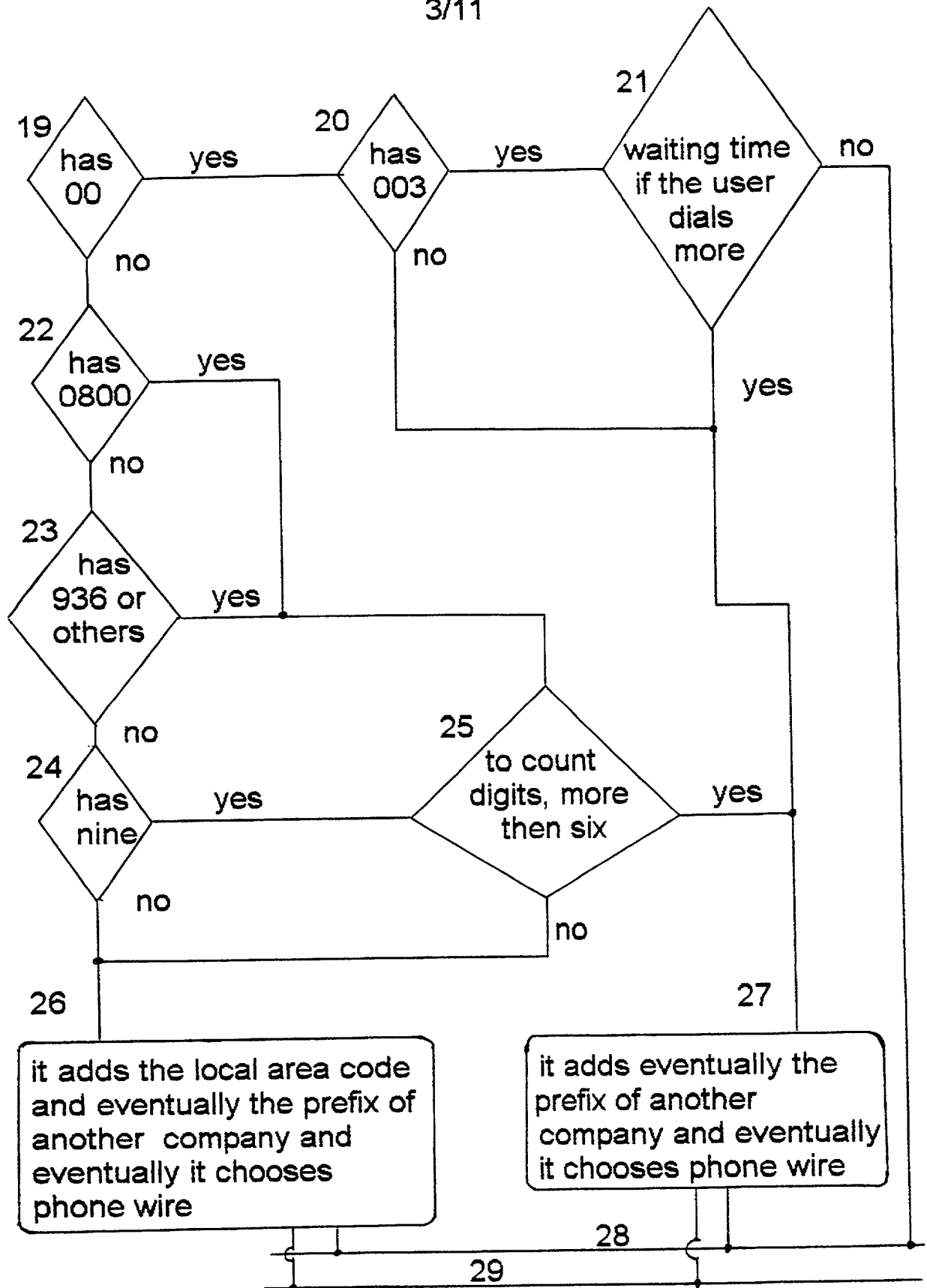


Figure 2

3/11



4/11

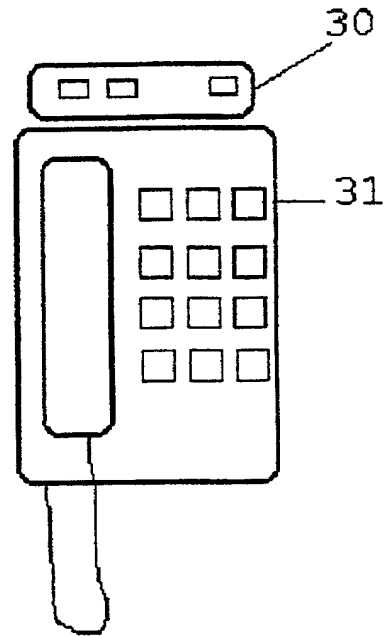


Figure 4

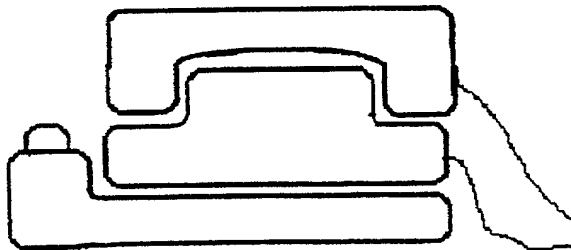


Figure 5



5/11

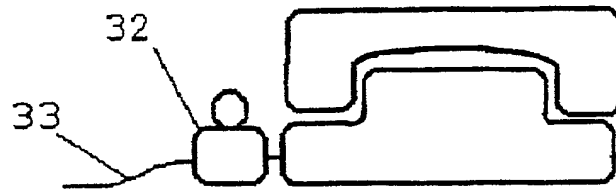


Figure 6

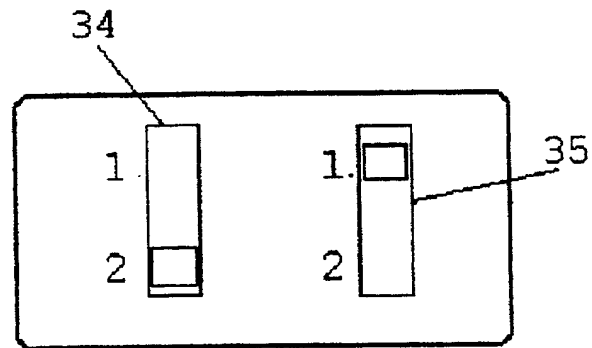


Figure 7

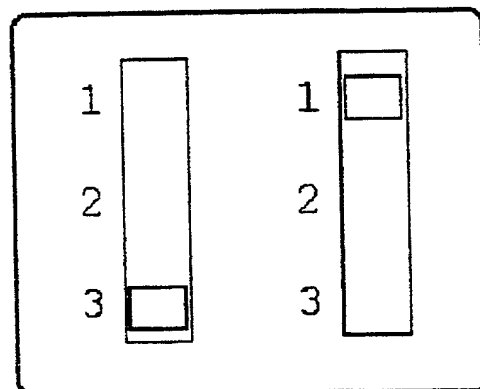


Figure 8

6/11

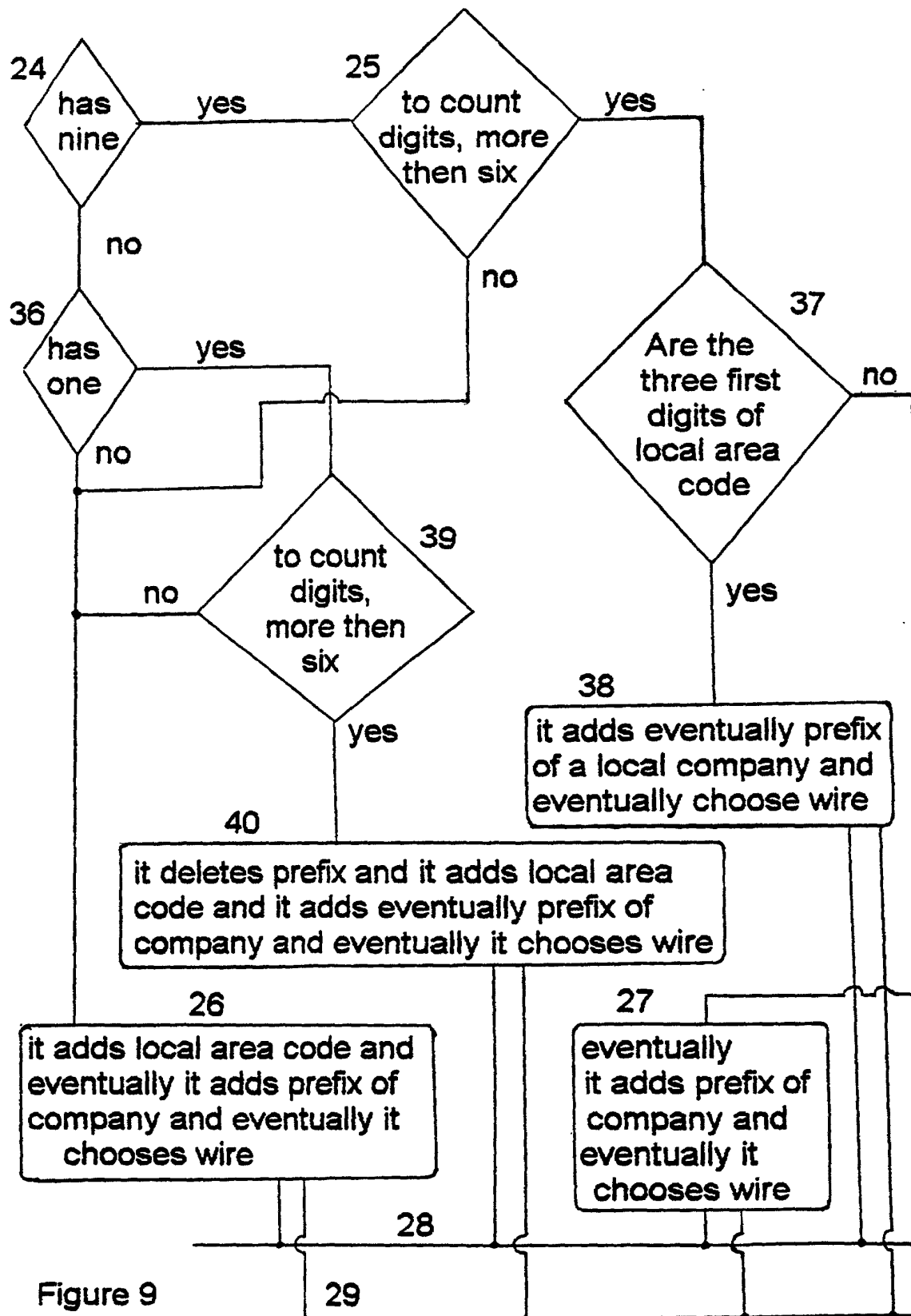


Figure 9

7/11

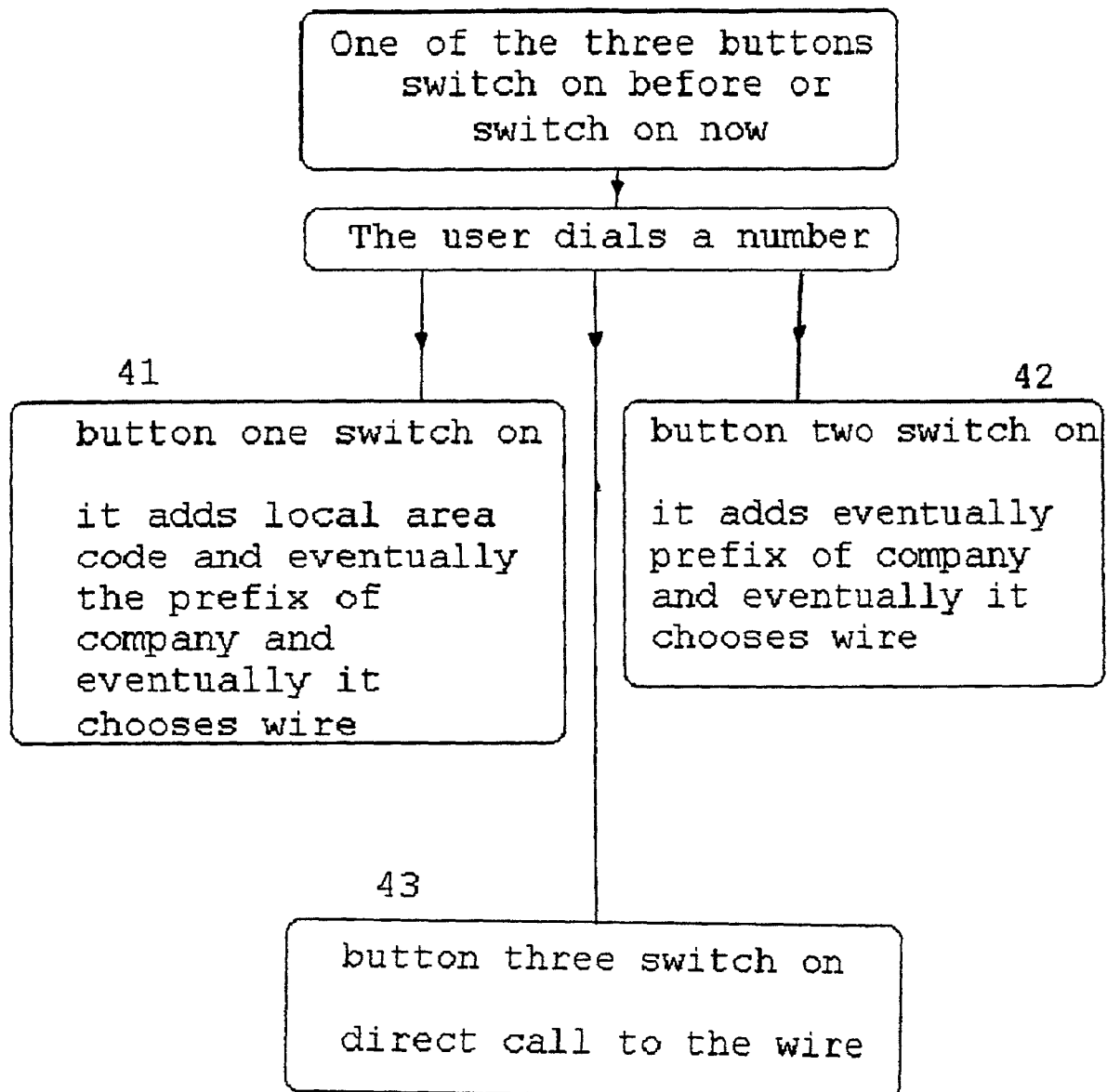


Figure 10

8/11

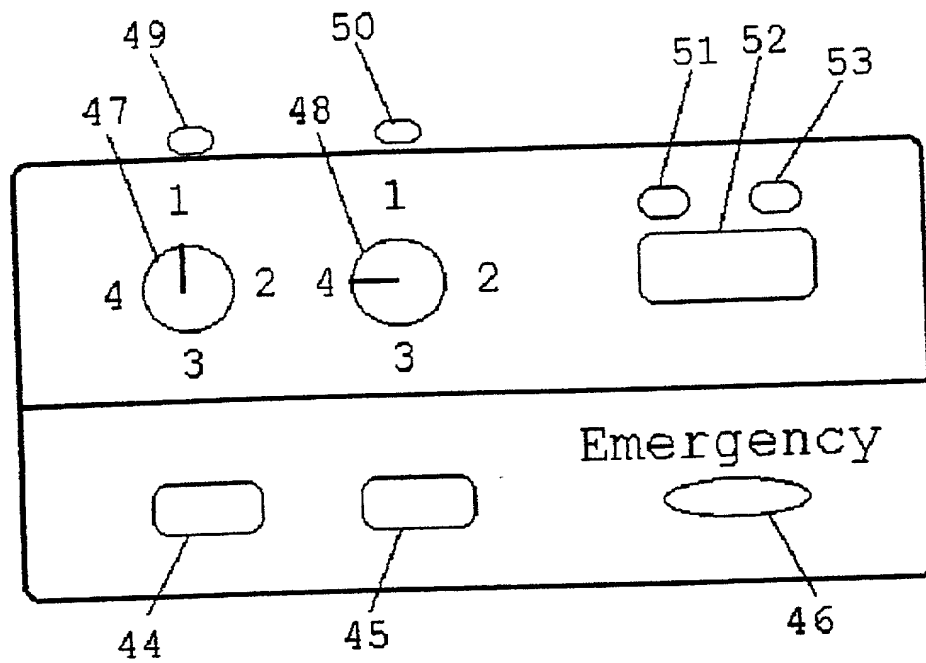


Figure 11

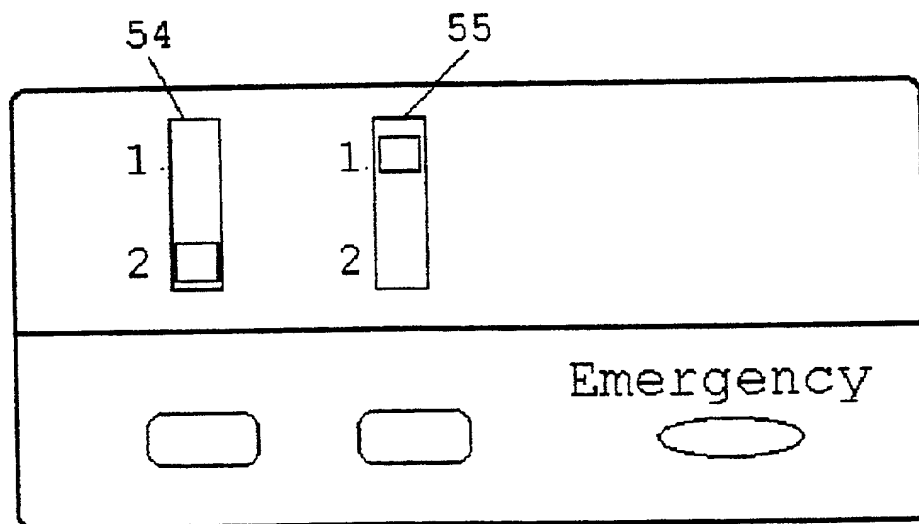


Figure 12

09/806512

9/11

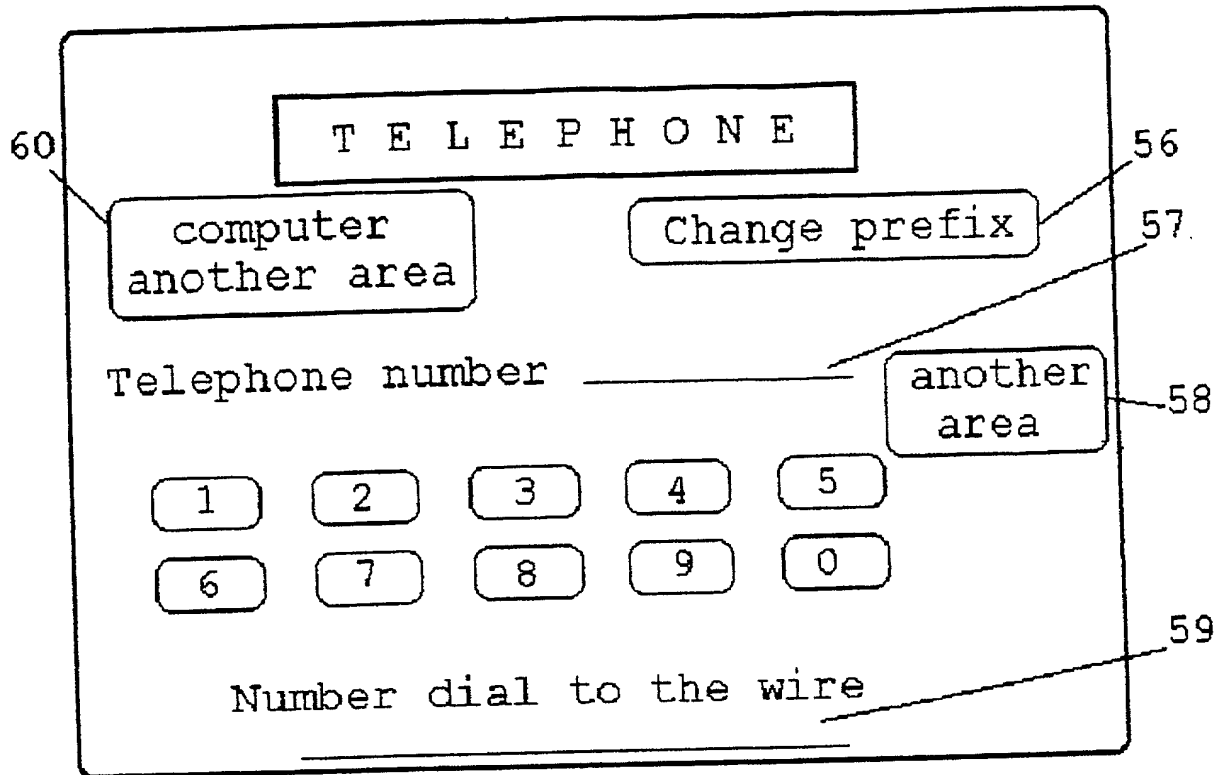
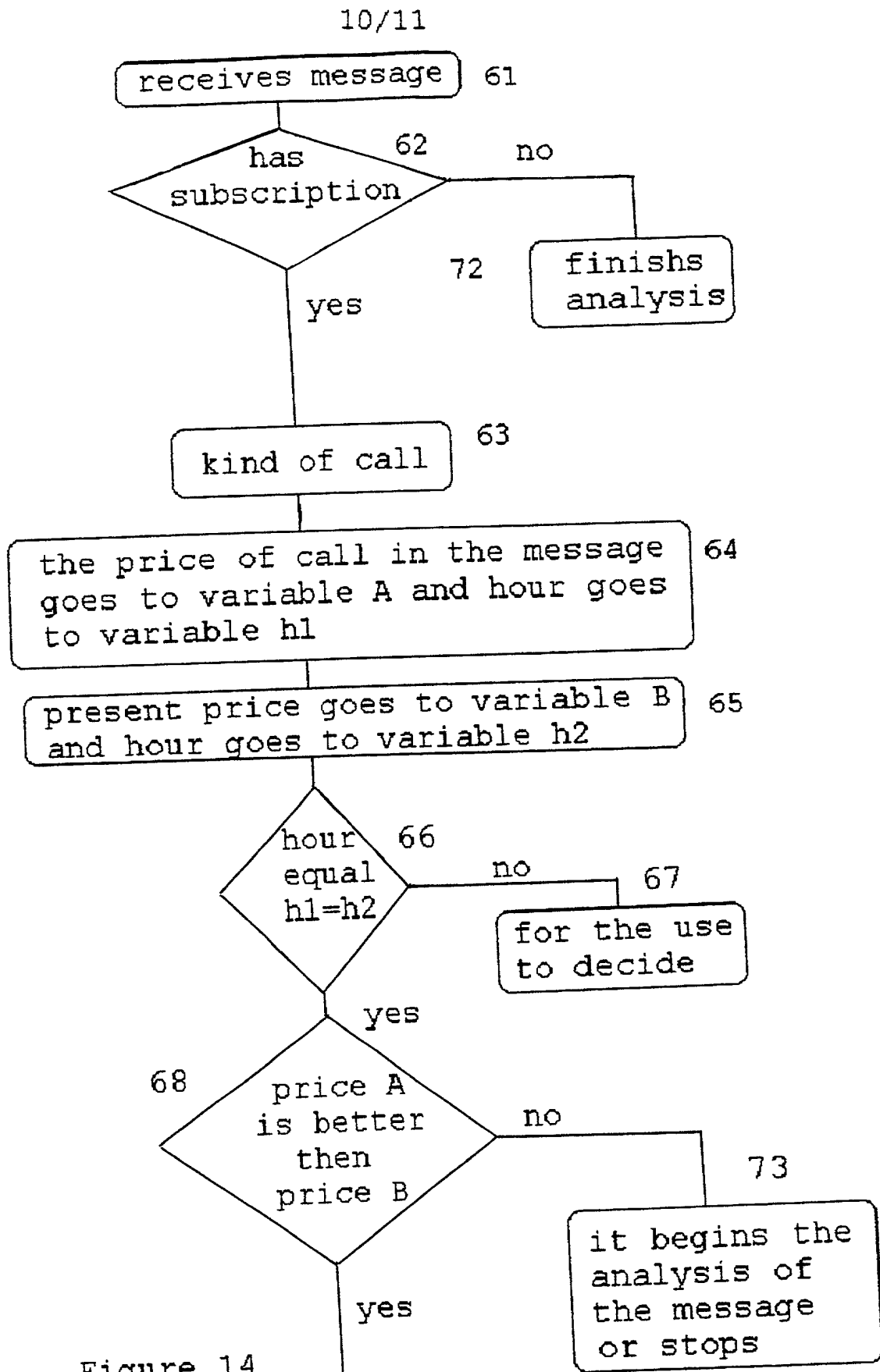


Figure 13



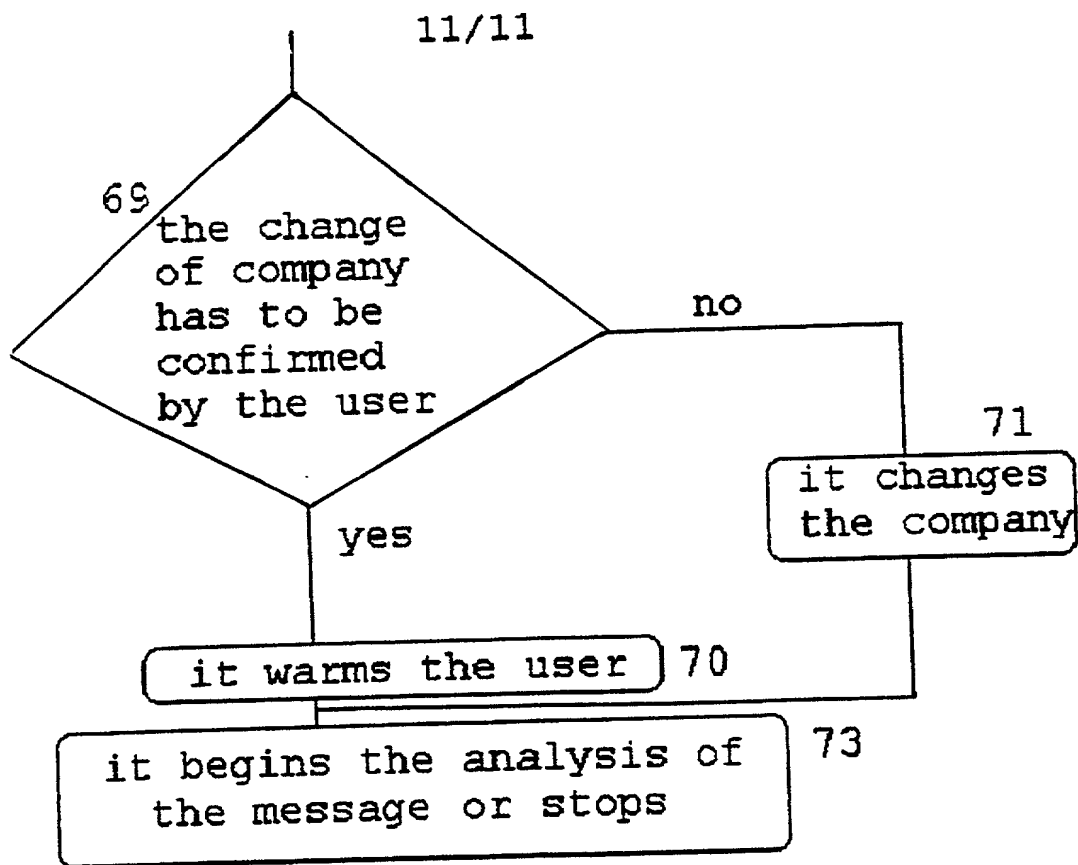


Figure 15

APR. 10, 2001 4:13PM OBLON, SPIVAK, ETC

NO. 656  
205815082PCT P.2

# Declaration, Power Of Attorney and Petition

Page 1 of 2

WE (I) the undersigned inventor(s), hereby declare(s) that:

My residence, post office address and citizenship are as stated below next to my name,

We (I) believe that we are (I am) the original, first, and joint (sole) inventor(s) of the subject matter which is claimed and for which a patent is sought on the invention entitled

DIALING SIMPLIFICATION SYSTEM FOR TELEPHONES

the specification of which

☐ is attached hereto.

☐ was filed on \_\_\_\_\_ as

Application Serial No. \_\_\_\_\_

and amended on \_\_\_\_\_.

☒ was filed as PCT international application

Number PCT/PT99/00016

on 14 October 1999

and was amended under PCT Article 19

on \_\_\_\_\_ (if applicable).

We (I) hereby state that we (I) have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

We (I) acknowledge the duty to disclose information known to be material to the patentability of this application as defined in Section 1.56 of Title 37 Code of Federal Regulations.

We (I) hereby claim foreign priority benefits under 35 U.S.C. § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed. Prior Foreign Application(s)

Application No.	Country	Day/Month/Year	Priority Claimed	
<u>102213</u>	<u>PORTUGAL</u>	<u>14 October 1998</u>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
_____	_____	_____	<input type="checkbox"/> Yes	<input type="checkbox"/> No
_____	_____	_____	<input type="checkbox"/> Yes	<input type="checkbox"/> No
_____	_____	_____	<input type="checkbox"/> Yes	<input type="checkbox"/> No

09806512-041601



APR. 10. 2001 4:14PM OBLON, SPIVAK, ETC

NO.656 P.3

Page 2 of 2  
Declaration

We (I) hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below.

(Application Number)

(Filing Date)

(Application Number)

(Filing Date)

We (I) hereby claim the benefit under 35 U.S.C. § 120 of any United States application(s), or under § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

Application Serial No.	Filing Date	Status (pending, patented, abandoned)
PCT/PT99/00016	14 October 1999	

And we (I) hereby appoint the following registered practitioner(s):



022850

as our (my) attorneys, with full powers of substitution and revocation, to prosecute this application and to transact all business in the Patent Office connected therewith; and we (I) hereby request that all correspondence regarding this application be sent to



022850

We (I) declare that all statements made herein of our (my) own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

João Antonio Crespo Pontes  
NAME OF FIRST SOLE INVENTOR

Residence: Rua Prof. Mira Fernandes,

91-6°F, P-1900 Lisboa, PORTUGAL

✓ *João Antonio Crespo Pontes*  
Signature of Inventor

Citizen of: Portugal

Mailing Address: same as above

✓ 11/04/2001  
Date